Patent Claims

1. Activation assembly (1, 30, 50) for two friction shifting elements (2, 3) that are activated by a pressure mean and constructed as disc couplings or disc brakes positioned axially immediately behind each other and radially basically on the same transmission diameter in a transmission whose inner discs (10, 11) and outer discs (12, 13) are secured to disc carriers and with which a servo device (4, 5) is associated, characterized in that the inner discs (10, 11) of both friction shifting elements (2, 3) are placed on a common inner disc carrier (16), by the inner disc carrier (16) being constructed with respect to its cross-section geometry as a pot axially opened on one side, by both servo devices (4, 5) being radially positioned at least primarily within the pot space (27) formed by the pot-shaped inner disc carrier (16) as well as at least in part axially next to each other and basically radially below the disc packets (8, 9) of the two friction shifting elements (2, 3), whereby the first friction shifting element (2) is placed near a pot base (26) of the inner disc carrier (16), and by both friction shifting elements (2, 3) being activated by servo devices (4, 5) individually and independent of each other.

2. Activation assembly according to Claim 1, characterized in that the common inner disc carrier (16) for both friction shifting elements (2, 3) exhibits radial openings (25, 53) distributed on the circumference at its outer diameter in the axial area between the two disc packets (8, 9).

3. Activation assembly according to Claim 1 or 2, characterized in that each of the two servo devices (4, 5) exhibits an axially movable piston (6, 7) whereby on each of these pistons (6, 7) either a radially aligned pressure plate (20, 33, 34) is constructed in the area of its outer diameter whose radial free end acts on a disc packet (8, 9) associated with a servo device (4, 5) and in the process the axially open end of the inner disc carrier (16) away from the pot base overlapping in a radial direction and being able to overlap in an axial direction or by several radially aligned fingers (19, 51, 52) distributed on the circumference being constructed whose radially free ends act on the disc packet (8, 9) associated with the servo device (4, 5) and in the process radially penetrating the openings (25, 53) of the inner disc carrier (16) or the axially open ends

of the inner disc carrier (16) away from the pot base overlapping in a radial and axial direction.

4. Activation assembly according to Claim 3, characterized in that the pressure plate (20, 33, 34) is basically constructed in a ring-shape.

5. Activation assembly according to Claim 3, characterized in that the pressure plate (20, 33, 34) is constructed as a network of several fingers distributed on the circumference.

6. Activation assembly (first embodiment) according to at least one of Claims 2 to 5, characterized in that the first servo device (4), which is associated with the first friction shifting element (2) away from the pot base, borders on the pot base (26) of the inner disc carrier (16) and is positioned, at least primarily, radially below the disc packet (8) of the first friction shifting element (2), by the first servo device (4) showing on its piston (6) several fingers distributed on its circumference which penetrate the radial openings (25) of the inner disc carrier (16) in a radial direction and activate the disc packet (8) of the first friction shifting element (2) upon its closing in the direction of the pot base (26) of the inner disc carrier (16), by the servo device (5) associated with the second friction shifting element (3) away from the pot base axially bordering the first servo device (4) and is positioned, at least primarily, radially below the disc packet (9) of the second friction shifting element (3), and by the second servo device (5) exhibiting on its piston (7) a pressure plate (20) which overlaps in a radial direction the axially open end of the inner disc carrier (16) away from the pot base and also can overlap in an axial direction and activates in an axial direction toward the pot base (26) of the inner disc carrier (16) upon its closing the disc packet (9) of the second friction shifting element (3).

7. Activation assembly (second embodiment) according to at least one of Claims 2 to 5, characterized in that the inner discs (11) of the disc packet (9) of the second friction shifting element (3) away from the pot base exhibit axial openings (43) distributed on the circumference and/or by the inner disc carrier (16) showing axially aligned recesses distributed on its circumference at least in the area of the disc packet (9) of the second friction shifting element (3) on its radial outer side, whereby these

openings (43) in the inner discs (11) of the second friction shifting element (3) or the recesses in the inner disc carrier (16) are axially equally aligned on the circumference and form a penetration area through which an axially aligned finger (35) is guided that is associated with the piston (6) of the servo device (4) of the first friction shifting element (2) near the pot base, whereby to activate the first friction shifting element (2) several of these axial fingers (35) are provided which are positioned in a distributed way on the circumference and which penetrate the openings (43) in the inner discs (11) of the second friction shifting element (3) and/or the axial recesses in the inner disc carrier (16) in basically an axial direction to the pot base (26) and act with their pot base side end on the disc packet (8) of the first friction shifting element (2).

8. Activation assembly according to Claim 14, characterized in that the openings (43) and/or the axially aligned recesses in the inner disc carrier (16) are constructed, when viewed in the direction of the circumference, as an interruption of the disc entrainment profile on the inner disc carrier (16) and correspondingly on the inner discs (11) of the second disc packet (9) away from the pot base.

9. Activation assembly according to Claim 14 or 15, characterized in that the first servo device (4) associated with the friction shifting element (2) near the pot base borders the pot base (26) of the inner disc carrier (16) and is positioned at least in part radially below the disc packet (8) of the first friction shifting element (2) near the pot base as well as in part radially below the disc packet (9) of the second friction shifting element (3) away from the pot base, in that the first servo device (4) exhibits a pressure plate (33) on its piston (6) which overlaps in a radial direction the axially open end of the inner disc carrier (16) away from the pot base and is rigidly connected or action-connected at its outer diameter with the axially aligned fingers (35) and which activates the disc packet (8) of the first friction shifting element (2) upon its closing via these fingers (35) axially in the direction toward the pot base (26) of the inner disc carrier (16), in that the second servo device (5) associated with the second friction shifting element (3) away from the pot base axially bordering the first servo device (4) and being positioned at least in part radially below the disc packet (9) of the second friction shifting element (3) as well as at least in part radially below an axial section (31) of the piston (6) of the first servo device (4), and in that the second servo device (5) showing a pressure plate (34) on its piston (7) which overlaps the pressure plate (33) of the piston

(3) of the first servo device (4) outside the pot area (27) of the inner disc carrier (16) in a radial and axial direction and which activates the disc packet (9) of the second friction shifting element (3) upon its closing axially in the direction toward the pot base (26) of the inner disc carrier (16).

10. Activation assembly (third embodiment) according to at least one of Claims 2 to 5, characterized in that the first servo device(4) associated with the first friction shifting element (2) near the pot base borders on the pot base (26) of the inner disc carrier (16) and is at least primarily positioned radially below the disc packet (8) of the first friction shifting element (2), in that the second servo device (5) associated with the second friction shifting element (3) away from the pot base axially borders the first servo device (4) and is at least primarily positioned radially below the disc packet (9) of the second friction shifting element (3), and in that both servo devices (4, 5) exhibit on each of their pistons (6, 7) several fingers (51, 52) basically radially aligned and distributed on the circumference which penetrate in a radial direction the openings (53) provided with a radial distribution on the circumference in the axial area between both disc packets (8, 9) and which act with their radial, outer, free ends axially on the disc packet (8, 9) associated with them, whereby the first friction shifting element (2) near the pot base is closed by a pulling activation of the piston (6) of the first servo device (4) via the fingers (51) associated with their piston (6) parallel to the axis in the direction to the pot base (26) of the inner disc carrier (16) and whereby the second friction shifting element (3) away from the pot base is closed by a pressing activation of the piston (7) of the second servo device (5) in the direction away from the pot base (26) of the inner disc carrier (16).

11. Activation assembly according to Claim 10, characterized in that a finger (51) of the piston (6) of the first servo device (4) and a finger (52) of the piston (7) of the second servo device (5) are associated with each of the openings (53) radially distributed on the circumference in the axial area between the two disc packets (8, 9).

12. Activation assembly according to Claim 10 or 11, characterized in that the fingers (51, 52) of the pistons (6, 7) of both servo devices (4, 5) are positioned, when spatially viewed, axially behind each other.

13. Activation assembly according to Claim 10 or 11, characterized in that the fingers (51, 52) of the pistons (6, 7) of both servo devices (4, 5) are positioned, when spatially viewed, axially interlaced in each other in the direction of the circumference and in the same axial plane of the transmission.

14. Activation assembly according to one of the previous claims, characterized in that both pistons (6, 7) of the servo devices (4, 5) are axially positioned immediately behind each other.

15. Activation assembly according to one of the previous claims, characterized in that the first servo device (4) and/or the second servo device (5) show(s) a dynamic activation pressure compensation.

16. Activation assembly according to Claim 15, characterized in that the pressure compensation areas (17, 39, 56; 18, 40, 56) of the dynamic activation pressure compensation of the servo devices (4, 5) are positioned axially adjacent to the pressure areas of the servo devices (4, 5).

17. Activation assembly according to Claim 15 or 16, characterized in that the pressure compensation area (17, 39, 56) associated with the first piston (6) away from the pot base axially border the pot base (26) of the inner disc carrier (16).

18. Activation assembly according to Claim 15, 16 or 17 characterized in that the pressure compensation area (18) associated with the second piston (7) away from the pot base is axially positioned between the first piston (6) and the second piston (7).

19. Activation assembly according to Claim 15, 16 or 17 characterized in that the pressure compensation area (40, 57) associated with the piston (7) away from the pot base borders axially on the side of the second piston (7) away from the pot base which lies opposite the first piston (6) near the pot base.

20. Activation assembly according to Claim 15, 16, 17 or 19 characterized in that the pressure compensation area (40, 57) of the second servo device (5) is positioned in the area of the axial edge of the inner disc carrier (16) away from the pot base.

21. Activation assembly according to at least one of Claims 15 to 20, characterized in that the pressure compensation areas (17, 39, 56; 18, 40, 56) associated with the pistons (6, 7) are positioned, when spatially viewed, either to the axial left or axial right of the pressure area which is associated with the pistons (6, 7).

22. Activation assembly according to at least one of Claims 15 to 21, characterized in that cooling oil being supplied to the discs (10, 12) of the first friction shifting element (2) which can flow from the pressure compensation area (17, 56) associated with the first friction element (2) via a flow line (24, 54) that is constructed between the radial outer side of this pressure compensation area (17, 56) and the radial inner side of the inner disc carrier (16) and leads through radial openings (21, 58) in the inner disc carrier (16) which are positioned, when spatially viewed, in the area of the disc packet (8) of the first friction shifting element (2).

23. Activation assembly according to at least one of Claims 15 to 22, characterized in that cooling oil is supplied to the discs (11, 13) of the second friction shifting element (3) which can flow from the pressure compensation area (18, 57) associated with the second friction element (3) via a flow line (25, 55) that is constructed between the radial outer side of this pressure compensation area (18, 57) and the radial inner side of the inner disc carrier (16) and leads through radial openings (22, 59) in the inner disc carrier (16) which are positioned, when spatially viewed, in the area of the disc packet (9) of the second friction shifting element (3).

24. Activation assembly according to at least one of Claims 15 to 21, characterized in that cooling oil is supplied to the discs (10,12; 11, 13) of the two friction shifting element (2, 3) which can flow from the pressure compensation area (39) associated with the first friction element (2) via a flow line (38) that is constructed between the radial outer side of this pressure compensation area (39) and the radial inner side of the inner disc carrier (16) and leads through radial openings (36, 37) in the

inner disc carrier (16) which are positioned, when spatially viewed, in the area of the disc packets (8, 9) of the two friction shifting elements (2, 3).

25. Activation assembly according to at least one of the previous claims, characterized by in that the cooling oil supply to at least one of the disc packets (8, 9) of the two friction shifting elements (2, 3) occurs through special supply lines which do not lead through the common inner disc carrier (16).

26. Activation assembly according to at least one of the previous claims, characterized in that the inner discs (10, 11) of both friction shifting elements (2, 3) are constructed as lining discs.

27. Activation assembly according to at least one of the previous claims, characterized in that the radial openings (23, 53) in the inner disc carrier (16) for accepting the fingers (19, 51, 52) are longer in the axial direction than the axial extent of these fingers (19, 51, 52) plus the gap of the disc packets (8, 9) of the associated friction shifting elements (2, 3).

28. Activation assembly according to at least one of Claims 1 to 27, characterized in that both shifting elements (2, 3) are constructed as a disc coupling.

29. Activation assembly according to at least one of Claims 1 to 27, characterized in that both shifting elements are constructed as gear brakes, in which the common inner disc carrier is connected in a torque-proof way with the transmission housing or is integrated into the transmission housing, or in which the outer disc carrier is connected with the transmission
housing or is integrated into the transmission housing.

30. Activation assembly according to at least one of Claims 1 to 27, characterized in that one of the two shifting elements is constructed as a gear brake, in which the outer disc carrier is connected in a torque-proof way with the transmission housing or is integrated into the transmission housing.